Spectroelectrochemical properties of homo- and heteroleptic ruthenium and osmium binuclear complexes

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Published in:
Dalton Transactions

DOI:
10.1039/b823104d

Publication date:
2009

ELECTRONIC SUPPORTING INFORMATION

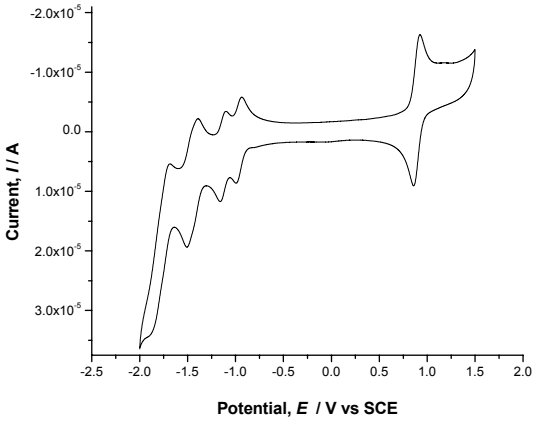

Fig. SI1. Cyclic voltammogram (CV) of **2** (1mM) in 0.1 M $TBAPF_6$ CH_3CN:CH_2Cl_2 (1:1) at 0.1 V s^{-1}.

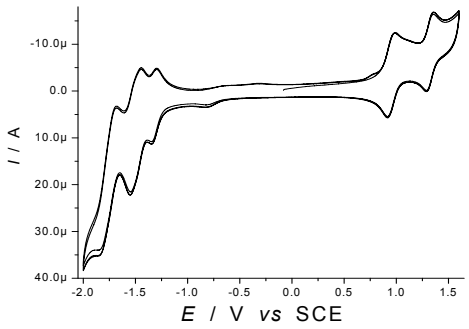

Fig. SI1. Cyclic voltammogram (CV) of **3** (1mM) in 0.1 M $TBAPF_6$ CH_3CN:CH_2Cl_2 (1:1) at 0.1 V s^{-1}.

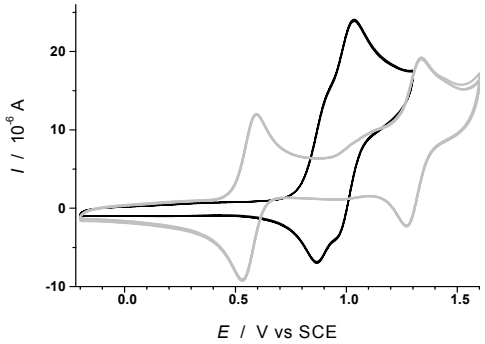

Fig. SI2. Cyclic voltammogram (CV) of $[(bipy)_2Ru(pytr\text{-}bipy)Os(bipy)_2]^{3+}$(**4**) (1 mM, black trace) and $[(bipy)_2Os(pytr\text{-}bipy)Ru(bipy)_2]^{3+}$(**5**) (1 mM, grey trace) in 0.1 M $TBAPF_6$ CH_3CN:CH_2Cl_2 (1:1) at 0.1 V s^{-1}.

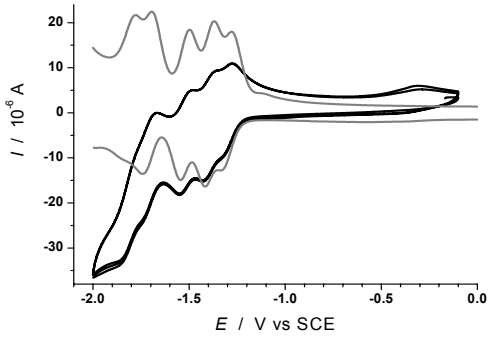

Fig. SI4. Cyclic (black trace) and differential pulse (grey trace) voltammograms of **5** (1mM) in 0.1 M $TBAPF_6$ CH_3CN:CH_2Cl_2 (1:1) at 0.1 V s^{-1}.

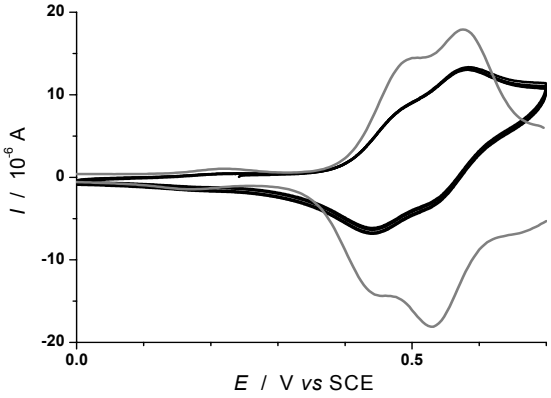

Fig. SI5. Cyclic (black line) and differential pulse (grey line) voltammograms of **6** (1mM) in 0.1 M $TBAPF_6$ CH_3CN:CH_2Cl_2 (1:1) at 0.1 V s^{-1}.

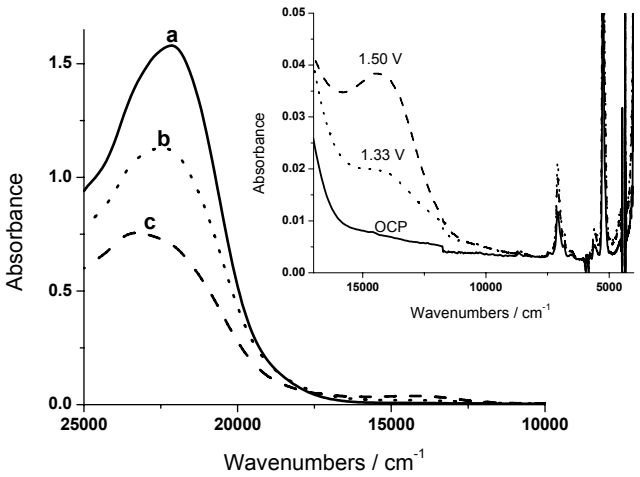

Fig. SI6. UV/Vis-NIR absorption spectra of $[(bipy)_2Ru(qpy)Ru(bipy)_2]^{4+}$ (**1**) in 0.1 M $TBAPF_6$ /CH_3CN at (a) E = OCP (open circuit potential) (b) E = 1.33 V [Ru(III)-Ru(II)] and (c) E = 1.50 V [Ru(III)-Ru(III)]. vs SCE. Inset: expansion of NIR region.

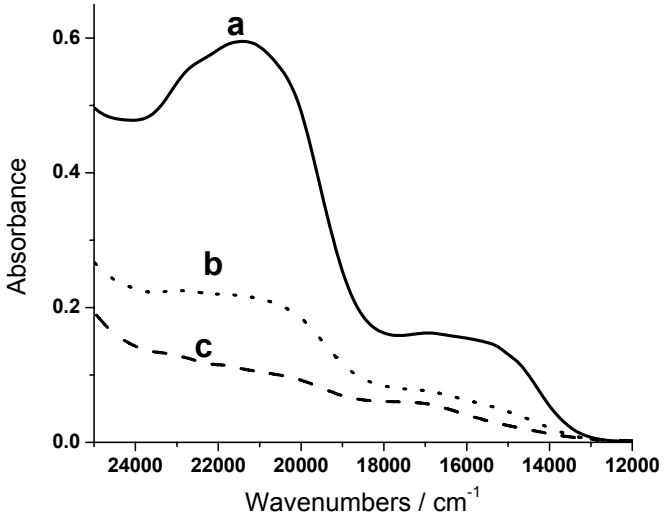

Fig. SI7. UV/Vis-NIR absorption spectra of $[(bipy)_2Os(qpy)Os(bipy)_2]^{4+}$ (**2**) in 0.1 M $TBAPF_6$ /CH_3CN at (a): E = OCP; (b) E = 0.89 V [Os(III)-Os(II)] and (c) E = 1.20 V [Os(III)-Os(III)] vs SCE.

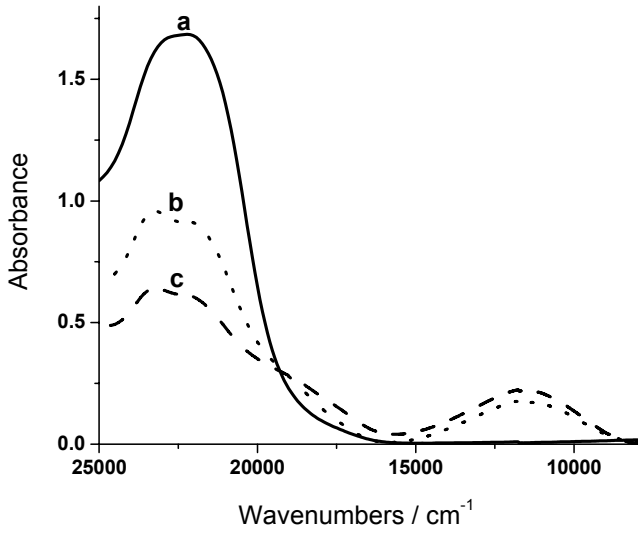

Fig. SI8. UV/Vis-NIR absorption spectra of $[(bipy)_2Ru(pytr\text{-}bipy)Ru(bipy)_2]^{3+}$ (**3**) in 0.1 M $TBAPF_6$ /CH_3CN at (a) E = OCP; (b) E = 1.10 V [Ru(III)-Ru(II)]; (c) E = 1.40 V [Ru(III)-Ru(III)] vs SCE.

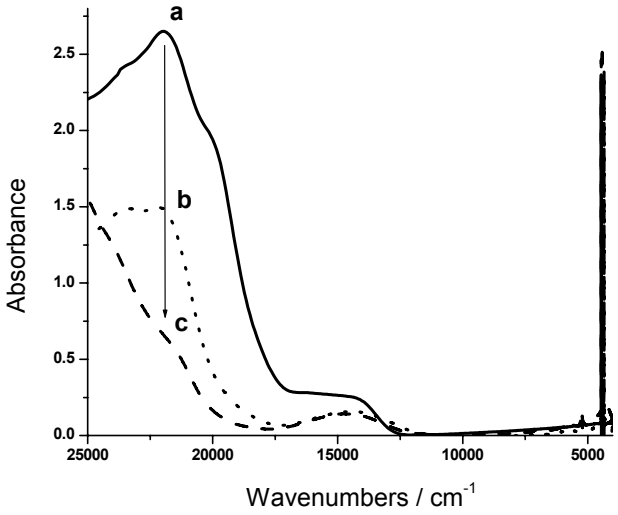

Fig. SI9. UV/Vis-NIR absorption spectra of $[(bipy)_2Os(pytr\text{-}bipy)Ru(bipy)_2]^{3+}$ (**5**) in 0.1 M $TBAPF_6$ /CH_3CN at (a) E = OCP, (b) E = 0.90 V [Os(III)-Ru(II)] and (c) E = 1.50 V [Os(III)-Ru(III)] vs SCE.